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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---------------------------------|-------------|----------------------|---------------------|------------------|
| 10/722,990 | 11/26/2003 | Junji Mizutani | SAEG154.001AUS | 9018 |
| 20995 | 7590 | 02/22/2006 | EXAMINER | |
| KNOBBE MARTENS OLSON & BEAR LLP | | | DRODGE, JOSEPH W | |
| 2040 MAIN STREET | | | ART UNIT | PAPER NUMBER |
| FOURTEENTH FLOOR | | | | |
| IRVINE, CA 92614 | | | 1723 | |

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|------------------|-----------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/722,990 | MIZUTANI ET AL. |
| | Examiner | Art Unit |
| | Joseph W. Drodge | 1723 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-9 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 304,1104,1205.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: ____.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 and claims dependent therefrom, in the 3rd clause, it is unclear whether “residual hydrofluoric acid...” refers to vapor that was contacted with dissolution water as in the 2nd clause of the claim, or to vapor that was not contacted or remains after the contacting.

In claim 5, it is unclear how alkali-containing water is obtained in the separation step clause, since there is not previous recited step for treating or neutralizing the vapor or liquid with alkali.

ALLOWABLE SUBJECT MATTER

Claims 1-4, as well as claim 5, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 1 and 5, and claims dependent therefrom distinguish over the prior art in view of recitation of a method of hydrofluoric (HF) acid wastewater treatment in which a hydrofluoric acid concentration and evaporation step, producing a vapor, precedes a neutralization step in which vapor or concentrated water is neutralized with an alkali to produce neutralized liquid. In each of the Japanese patent publications of record with the 0304 and 1104 Information Disclosure Statements, a neutralization step with alkali to treat HF acid-containing wastewater was followed by a downstream, subsequent concentration/evaporation step. Similarly, in Kurokawa et al patent 6,379,548, in a

system and method for treating waste water containing HF acid, a step for neutralizing the effluent with alkali precedes a concentration/evaporation step (or steps), in combination with other process steps including biological treatment and ion exchange treatment.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Chlanda et al patent 3,787,304.

Chlanda et al disclose HF concentrator (column 4, line 24), 'water' contactor 3 (column 4, lines 63-67), 'alkali' contactor 4 (column 2, lines 47-51), condenser 22 (column 2, line 33); for claim 7-9, ion exchange membrane-containing separator 5 (starting at column 2, lines 66-70); for claim 8, "for bringing the condensed water ... into contact with an alkali..." apparatus in the form of conduits 33,34,35,66, etc. ; and for claim 9, further concentrators in the form of filters 8 and 9.

Applicants are cautioned that apparatus claims 6-9 are replete with functional, descriptive language, recitation of the structural components have been given their broadest, reasonable interpretation.

Claims 6-9 are rejected under 35 U.S.C. 102(e) as being anticipated by either Kurokawa et al patent 6,379,548.

Kurokawa discloses: concentrator/evaporator 30, water contactor 12, alkali contactor 16, and a condenser 32 for collecting water from the previous components (column 7, lines 37-40), water also inherently being condensed in cooling tower components 1 and 2 to condense distillation vapors. For claim 7, see membrane-containing separators 10, 19 and 23. For claim 8, see further neutralization/concentration apparatus 15 and 30. For claim 9, see also further reactor/concentrator 25. Regarding claims 7-9, disclosed reverse osmosis membranes remove or exchange inorganic ions (column 6, lines 66-67 and column 7, lines 19-25), ion exchange function of the disclosed separator also disclosed at column 6, lines 27-28 “ion exchange device and membrane filtration device”.

Applicants are cautioned that apparatus claims 6-9 are replete with functional, descriptive language, recitation of the structural components have been given their broadest, reasonable interpretation.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurokawa et al patent 6,379,548 in view of Chlanda et al patent 3,787,304.

Kurokawa discloses: concentrator/evaporator 30, water contactor 12, alkali contactor 16, and a condenser 32 for collecting water from the previous components (column 7, lines 37-40), water also inherently being condensed in cooling tower components 1 and 2 to condense distillation vapors. For claim 7, see membrane-containing separators 10, 19 and 23. For claim 8, see further

neutralization/concentration apparatus 15 and 30. For claim 9, see also further reactor/concentrator 25. Regarding claims 7-9, disclosed reverse osmosis membranes are associated with removal or exchanging of inorganic ions (column 6, lines 66-67 and column 7, lines 19-25), ion exchange function of the disclosed separator, together with reverse osmosis function of the separator is also disclosed at column 6, lines 27-28 "ion exchange device and membrane filtration device".

Claims 7-9 possibly differ from Kurokawa in explicit recitation of "ion exchange membranes" comprised with the separator. However, Chlanda et al teach use of ion exchange membranes as an electrodialytic unit beginning at column 2, lines 61-69, etc. It would have been obvious to one of ordinary skill in the art to have added or substituted the electrodialytic ion exchange membranes for the ion exchange device or reverse osmosis device of Kurokawa in order to obtain commercial HF acid by-product of high yield and high purity.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at telephone number 571-272-1140. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached at 571-272-1151. The fax phone number for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

February 19, 2006

Joseph Drodge
JOSEPH DRODGE
PRIMARY EXAMINER